

Remarks/Arguments

The Examiner is thanked for his careful review of this Application. Applicants submit this Amendment in response to the Office Action, dated June 18, 2003. Claims 25, 26, 42-59 are pending after entry of the present Amendment. Claims 1-24, and 27-41 have been cancelled and new claims 42-59 have been added. Claims 25 and 26 have been amended to correct typographical errors. No new matter is introduced by this Amendment.

Claim Rejections:

The Office has rejected claims 12-14, 16-18, and 28-41 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,312,319 to Donohue et al. (Donohue). The Office has further rejected claims 36-41 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,944,585 to Nagahara et al. (Nagahara) as well under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,062,955 to Liu. In a like manner, the Office has rejected claims 12-14, 16-18, and 28-35 under U.S.C. 103(a), as being unpatentable over either Nagahara or Liu in view of Applicants admitted prior art. It is respectfully submitted that rejection of claims 12-24 and 27-41 are moot in view of cancellation of claims 12-24 and 27-41.

As will be explained below, the cited prior art fails to disclose, teach, or suggest the claimed invention, as defined in new independent claims 44, 48, 51, 56, and 58.

Among other features, claim 44 defines a pad conditioner that includes a pressure application plate having a flat width that is configured to be applied onto a portion of the application surface of the dressing media. Furthermore, the portion of the application surface to be applied to the pad is defined by the flat width of the pressure application plate.

The new independent claim 48 defines a system for polishing a wafer. Together with other features, the system includes a web dressing media and a flat surface application plate. The flat surface application plate is configured to apply a portion of the web dressing media onto the surface of the polishing pad.

The next new independent claim 51 defines a method for conditioning a pad in a chemical mechanical polishing system. Along with other features, the method includes moving the pad to be conditioned continuously in one direction while performing a chemical mechanical polishing operation. The method also includes applying a portion of the contact surface of the web dressing media onto a non-flexing region of the pad.

In addition to features defined in claim 51, new independent claim further defines that the polishing surface includes a conditioning region and a wafer application region. The conditioning region is defined prior to the wafer application region, and the conditioning region is a non-flexing region of the pad.

The last newly added independent claim 58, defines a web handling system that along other features, is configured to rotate.

It is submitted that Donohue fails to disclose, teach, or suggest, each and every element of the claimed invention, as defined in independent claims 44, 48, 51, 56, and 58, as in Donahue, the contact area between the conditioning element and the polishing media is defined by a roller in a plane perpendicular to the polishing area. Thus, Donahue does not include a pressure application plate that has a flat width. Nor does Donahue teach, disclose, or suggest that the flat width of the pressure application plate defines the portion of the application surface. Rather, in Donahue, during the conditioning operation, the polishing pad is either forced against the roller-type conditioning element by operation of the polishing pad tension or the polishing pad is forced against the roller by way of vacuum. In either scenario, the portion of the conditioning media is not defined by a flat surface, as a flat surface cannot be created by the roller. Furthermore, in contrast to the claimed invention, as defined in claim 51, the portion of the polishing media that is defined by the conditioning element flexes in Donahue, as the polishing pad is biased against the roller during the conditioning operation and the polishing operation.

Additionally, in contrast to the claimed invention, as defined in claim 58, in Donahue, the contact area is defined after the polishing area such that the polishing pad is conditioned after the polishing pad is used to polish the wafer. See, for example, Figures 4A, 11, 14, and 16.

Donahue further discloses a continuous belt that can only be indexed in a first direction during the polishing operation. Thereafter, the indexed portion is fed to be conditioned by the conditioning element. Once the indexed portion has been conditioned, the direction of the polishing pad is reversed and the conditioned portion of the polishing pad is reversed back (i.e., moved in a second direction that is opposite to the first direction) that is used to polish the wafer. Thus, during the CMP operation, the polishing pad of Donahue moves in two opposite directions, rather than one direction, as defined in claims 51 and 56.

Considering the next reference, Nagahara, Applicants respectfully submit that Nagahara fails to disclose, teach, or suggest the claimed invention, as defined in new independent claims 44, 48, 51, 56, and 58. The conveying assembly of Nagahara includes an arm and a guiding component. The guiding component is roller-type and is connected to the arm that allows the portion of the conditioning tape defined underneath the guiding component to contact the polishing pad. As can be appreciated, among other features, Nagahara does not teach a pressure application plate that has a flat width, which defines the portion of the application surface to be applied to the pad (claim 44). In contrast, Nagahara teaches a roller-type guiding component that does not have a flat application surface. Furthermore, in contrast to the claimed invention, as defined in claim 44, Nagahara fails to teach, disclose, or suggest that the portion of the conditioning media to be applied to the pad is defined by the flat width of the pressure application. Additionally, Nagahara fails to teach, suggest, or disclose a conditioning region that is defined prior to the application region (as defined in claim 56). Furthermore, Nagahara fails to teach, disclose, or suggest a web handling system that includes a feed roll, take-up roll, and web dressing media that is configured to rotate (claim 58).

In the same manner, it is submitted that Liu fails to disclose, teach, or suggest the claimed invention, as defined in new independent claims 44, 48, 51, 56, and 58. Liu teaches a belt-operated conditioner that includes a longitudinal main body and a plurality of rollers. The axles of the rollers are parallel to each other, and are defined within the belt-operated conditioner while touching the belt. When the belt rotates at a constant speed, the belt-type conditioner is applied to the polishing pad while the rotating belt drives the rollers. To be more specific, in Liu, the rollers are rotated and driven as a result of the movement of the belt and the pressure applied to the rollers by the movement of the belt.

As can be appreciated, contrary to Liu in which the belt is applied to the pad without any help from the rollers, in the claimed invention, the pressure application plate that has a flat width is configured to apply the web dressing media onto the polishing pad (claims 44 and 48). Additionally, contrary to the belt-operated conditioner of Liu, in the claimed invention, a web dressing media that has a first point and a second with the first point being separate from the second point (claims 44 and 48) is used to condition the pad. As can be appreciated, the belt-operated conditioner of Liu does not include a web dressing media that can be fed and at least a linear portion of which can be collected (claim 51). Additionally, in the claimed invention, the conditioning region is defined prior to the application region (claim

56). Furthermore, the web handling system of the claimed invention includes a feed roll, take-up roll, and web dressing media that is configured to rotate (claim 58). As can be appreciated, Liu fails to teach, disclose, or suggest any of such features.

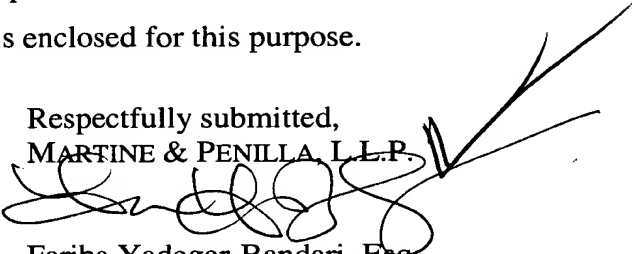
Thus, the newly added independent claims 44, 48, 51, 56, and 58 are respectfully submitted to be patentable over the cited prior art. In a like manner, dependent claims 45-47, 49, 50, 52-55, 57, and 59, each of which directly or indirectly depends from the respective independent claim 44, 48, 51, 56, and 58 are submitted to be patentable over the cited prior art for at least the reasons set forth above regarding the applicable independent claim.

Indication of Allowability:

Applicants acknowledge the Office's comment that independent claims 25 and 26 are allowable. New dependent claim 42 depends on claim 25 and new dependent claim 43 depends on independent claims 26. Accordingly, dependent claims 41 and 42 are submitted to be allowable, as depending from allowable base claims.

In view of the foregoing, Applicants respectfully submit that all of the pending claims 25, 26, 42-59 are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present Amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6900, ext. 6913. If any additional fees are due in connection with filing this Amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. LAM2P206). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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